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ABSTRACT

The Brazilian government, recognizing the benefits to be gained from instructional television (ITV), established the Advanced System of Educational Technologies (SATE). SATE conducted a study of educational television in Brazil in order to determine the actual needs for trained ITV personnel and, using these results, devised a training program. A review of ITV programing in Brazil supported their forecast that a production capacity of 24.5 hours of new programs per week was possible by 1972 utilizing the existing or planned ITV centers. The recommended size, composition, and function of ITV production teams was defined. The profected production capacity coupled with the recommended ITV team formed the basis for an estimate of personnel needs. Two training programs were then projected: one which would permit upgrading the skills of existing personnel and one which would not. A survey of existing training facilities and personnel showed that suitable physical facilities were available but that international cooperation would be necessary to staff and fund the training program, especially in its initial stages. The entering capaciilities of trainees were identified and the costs involved in the training program were estimated. (JY)

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INSTITUTE OF ECONOMICAL AND SOCIAL PLANNING (IPEA)

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"TRAINING OF PERSONNEL FOR EDUCATIONAL TELEVISION"

- Initial Report -

Jack Soifer
Luiz A. Salomão
Maria Eugênia Dias de Oliveira

Rio de Janeiro
IPEA/CNRH
September, 1970

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INTRODUCTION

Educational technology has been recognized as an important means of providing more effective instruction. Using a systems approach in the development of educational technology entails alternatives in form, not just substance. Such an approach will produce better results, because then the instructional technology is not merely added on to the existing systems, but a whole new system is devised.

The Brazilian Government, recognizing the benefits to be gained from educational technology, established a legal structure for the development of an Advanced System of Educational Technologies (SATE) through the issuance of Decree Number 65.239 on September 26, 1969. An Interministerial Commission was appointed to develop SATE. This commission has not convened as yet(*). However, the Technical Coordinating Group, which will serve as an advisory board for this commission, has had some informal sessions. It was decided to begin a study of educational television in Brazil in order to determine the actual needs for trained ETV personnel and, using these results, to devise a training program for such personnel, because ETV activities have been proceeding without the necessary number of qualified technicians.

The study presented in this paper, "Training of Personnel for Educational Television", has been prepared by experts from the FCBTVE (Brazilian Center Foundation for Educational Television), the Secretariat of Education of the state of Guanabara, and CNRH-IPEA (National Center for Human Resources-Institute of Economical and Social Planning). It is hoped that the findings of this study will aid in the development of a training program for ETV specialists in order to relieve the serious deficiencies existing in this area.

Criticisms and suggestions for improvement of this study are welcomed. Wherever considered pertinent, they will be incorporated into the final document before it is submitted to the Technical Coordinating Group and then to the Commission of Ministers for approval.

(Sgd) Arlindo Lopes Corrêa
Coordinator Technical Coordinating Group

(*) The Commission convened on July 2, 1970, for the first time.

1 - OBJECTIVES OF THE REPORT

Several educational institutions began to use television for educational and cultural purposes in Brazil in 1950. There was, however, no coordination in these initial attempts.

It was not until 1964 that the Ministry of Education and Culture requested the federal institute then called CONTEL (National Council of Telecommunication) to reserve TV channels exclusively for education. These channels could be made available to the requesting institution when it had fulfilled all requirements for developing an educational television channel. CONTEL granted this request in 1965 by reserving 100 channels(*) exclusively for education. The number of reserved channels has been increased to 131 and further expansions are being considered.

Several educational organizations, such as universities and Secretariats of Education have applied for the reserved channels. Authorization for the development of broadcasting stations has been granted to São Paulo, Recife, Salvador, Goiânia, Maceió, Manaus, Pôrto Alegre, Santa Maria, and São Luiz. Currently, though, only Recife (TV Universitária, Channel 11), São Paulo (TV Cultura, Channel 2), and São Luiz (Centro Educacional do Maranhão, TVE, Channel 2), which is in a provisionary period, are operating educational channels. The remainder are still being developed.

In 1967 the Brazilian Center Foundation of Educational Television was created under the jurisdiction of the Ministry of Education and Culture. This foundation (FCBTVE) there by became the first agency responsible for the coordination of activities in educational television, although it was later unable to fulfill these responsibilities. Already at that time great difficulties were arising concerning recruitment of ETV specialists and operational techniques.

FCBTVE was given as its major responsibility the production of audio-visual materials which could help maintain the programming of the educational TV channels. It was decided that due to the low number of qualified television professionals it would be easier to assemble them in a single production center which would have the responsibility of developing ETV programs that would later be distributed and adapted locally. Therefore, FCBTVE would be coordinating the activities of the Telecenters (Recording Centers of Educational Programs) as well as supplying the recently created ETV market with good quality productions in accordance with national and local plans.

(*) 50 VHF or very high freuency and 50 UHF or ultra high frequency.

This, however, did not happen. To date, FCBTVE has not started these activities. Meanwhile, TV channels have been reserved by various institutions. Also, stations have been installed which are staffed with poorly trained personnel. This problem in personnel is serious and needs to be solved immediately. For this reason, the Technical Coordinating Group, which acts as an advisory board for the Interministerial Commission formed for the purpose of drawing up plans for an Advanced System of Educational Technologies, considered the problem of training personnel for educational television a priority.

The chairman of the Technical Coordinating Group, Dr. Arlindo Lopes Corrêa, requested that Prof.ª Maria Eugenia Dias de Oliveira of the Secretariat of Education of the state of Guanabara, Dr. Jack Soifer of the National Center for Human Resources, and Dr. Luiz A. Salomão of FCBTVE form a Study Group. This Group is presenting herein a preliminary report of the actual needs for qualified ETV personnel in Brazil. Personnel needs for the entire country have been considered until the second semester of 1972, as well as all possible expansions of the system. This report also proposes a systematic program for training ETV personnel in this same time period in order to relieve the severe shortage in qualified personnel.

2 - THE PRODUCTION OF THE ETV BROADCASTING STATIONS: QUANTITATIVE REPORT

2.1 - Preliminary Considerations

The objective of section 2 is to specify accurately the present production scales of the existing Brazilian educational television stations, as well as the ones which will be developed shortly. As much as possible, distinctions have been made between instructional and cultural programs.

Some statistics, drawn up mainly by foreign experts, on the total production capacity of ETV stations in Brazil were not utilized in this study, because they were unrealistic or applicable only to production systems which have not been developed. As, for example, UNESCO(*) estimated a production capacity of about 10 000 hours of new programs per year, at a future time when systems of communication satellites for educational purposes would be in operation. Other documents indicate more conservative figures, but these are still too large when the present production phase is considered.

The members of the Study Group believe that they have developed more realistic estimates of production of all the existing ETV stations because of visits made to these institutions. An analysis of the resulting data leads to general conclusions concerning the present situation and conditions for development in short-range terms. It is necessary to determine both the present and future production capacity of all the ETV systems in order to plan a training program which will be adequate for both present and future personnel needs.

2.2 - Adopted Approach to the Study

In order to develop estimates of production for the whole ETV system, it is necessary to evaluate the potentials of each individual institution first. It is difficult to guarantee the accuracy of the estimates contained in this study since some are based on projects still in the initial stages of development. It is also impossible to determine accurately such projections within the necessary period of time, since they cover projects whose starting dates have not been definitely settled.

With the objective of making realistic projections of the various ETV projects, the Study Group made a detailed analysis of each project for the implementation of new units or the expansion of the existing ones.

(*) Jacques Torfs - National Integrated System of Educational Television IPEA/UNESCO, 1969, Rio.

Because a conservative point of view was used, it is possible that we have projected the installation of only one unit at a time when two or more units are expected to begin.

It is practically unforeseeable at this time that a sufficient number of closed circuit systems technically capable of developing adequate productions will be installed. Such installations generally require limited resources in comparision to the investment necessary for the development of a TV station or a Telecenter. For this reason, they could be made available to the majority of states, universities, and even to some municipal authorities.

It is recommended that, if such closed circuit systems are developed, they should devote themselves to the training of specialists and to specific experimental production and research. In this manner, they could have some influence on the amount of national production.

2.3 Size of the Present Production

With the approach discussed above, Table 2.3-I was prepared, showing the production of new programs at two of the presently functioning telecenters.

TABLE 2.3-I

PRODUCTION SCALES OF BRAZILIAN ETV'S IN APRIL, 1970

DESCRIPTION	NUMBER OF EQUIPPED STUDIOS	NUMBER OF MEMBERS IN PRODUCTION TEAMS*	HOURS/DAY OF CULTURAL AND INFORMATIVE	NEW PROGRAM INSTRUCTIONAL	PRODUCTION TOTAL
TV - Cultura, São Paulo	3	30	2.0	1.0	3.0
TV - Universitária in Pernambuco	1	20	1.5	1.0	2.5

* This was estimated by the Study Group

It should be noted that the total hours broadcasted daily by the two stations is well above their capacity to produce the programs mentioned. It is necessary to explain that the differences are covered by films produced by third parties and by repetition of programs. The total production capacity of the existing equipment and manpower has not been reached, however, due to

various difficulties, especially the lack of financial resources for funding the programming.

This information will aid in the establishment of forecasts of future production capacity. These include the output of stations which still are in the developmental stage.

2.4 - Future Production Capacity

Adopting the same approach as above, production for the 3 years beginning with second semester 1970 is presented in the schedule below with the anticipated time periods when the new telecenters will begin normal productions.

1970-2nd Semester - ETV of Maranhão, in São Luiz, in the phase of testing equipment: Maxwell (TV equipment, Brazilian origin) and Ampex (U.S.A.).

1971-1st Semester - ETV of the Secretariat of Education of Rio Grande do Sul in Pôrto Alegre, in the process of purchasing equipment (Marconi, British and Ampex, U.S.A.) and of constructing facilities.

2nd Semester - At this time, at least one of the following projects should reach a continuous production level.

- ETV of Amazonas in Manaus. The inauguration of its pilot-unit is sceduled for no later than the second semester of 1970. It will be operating, however, only as a reproducer of programs produced by other sources (using films and video tapes) at least until the end of first semester 1971, at which time it may be able to operated as a production center.

- ETV of Bahia in Salvador. Work has been suspended on this project at present. It is accepting, however, international bids for the purchase of equipment and has the possibility of reestablishing its former rate and becoming ready within this time period.

- and FCBTVE in Guanabara, the national production center. This project is gaining speed due to decisions made by the German and Brazilian governments, the later through the Ministry of Education and Culture with the purpose of developing the telecenter as soon as possible. The

probability of this project starting in 1971 will be strengthened by the association of the state government during the implementation phase. The equipment to be utilized is Fernseh (German) and Ampex (U.S.A.).

The Study Group believes that among the four projects mentioned above Amazonas has the most possibilities to begin within this time period. The main problem to be faced at this station may be the local availability of trained manpower.

1972-1st Semester - The following centers could reach a continuous production level at this time, if not attained previously.

- ETV of Bahia in Salvador.
- Telecenter of FCBTVE in Guanabara.
- and ETV of Alagoas in Maceió, presently being constructed.

The Study Group believes that the telecenter of FCBTVE has more possibilities to begin in the first semester of 1972 than Bahia or Alagoas.

-2nd Semester - Following the same line of considerations, either Bahia or Alagoas will start normal operations at this time and the other in 1973.

Table 2.4-I indicates the daily production capacity of each production center to be installed. It should be noted that, to simplify the table, estimates always refer to the end of each semester (June or December). Expansion capacity of existing facilities is also estimated.

TABLE 2.4-I

FORECAST OF THE PRODUCTION SCALE OF BRAZILIAN ETVs (70/72)

DESCRIPTION	NUMBER OF EQUIPPED STUDIOS	NUMBER OF HOURS OF NEW PROGRAMS PER DAY		
		Cultural & Informative	Educational	Total
1970				
2nd Semester	6	4.5	5.5	10.0
São Paulo	3	2.5	1.5	4.0
Recife	1	1.5	1.0	2.5
Maranhão	2	0.5	3.0	3.5
1971				
1st Semester	9	7.5	10.5	18.0
São Paulo	3	2.5	2.0	4.5
Recife	2	2.5	2.0	4.5
Maranhão	2	0.5	3.0	3.5
Rio Grande do Sul	1	1.0	2.0	3.0
2nd Semester				
Amazonas(*)	1	1.0	1.5	2.5
1972				
1st Semester	13	8.5	16.0	24.5
São Paulo	3	2.5	2.5	5.0
Recife	2	2.0	2.5	4.5
Maranhão	2	0.5	3.0	3.5
R.G. do Sul	3	1.0	2.5	3.5
Amazonas	1	1.0	1.5	2.5
FCBTVE(*)	1	0.5	2.0	2.5
2nd Semester				
Bahia(*)	1	1.0	2.0	3.0

(*) Anticipated starting dates

The number of employees required at the various centers for production staffs was not estimated in the previous table because this will be considered in the following sections.

The previous estimates stress the figures related to Brazilian production of cultural and informative programs as well as instructional ones. The total production of each type which should be reached during the considered time period is indicated in Table 2.4.II.

TABLE 2,4-II

PROJECTION OF THE PRODUCTION CAPACITY OF
INSTRUCTIONAL AND CULTURAL AND INFORMATIVE PROGRAMS (*)
(1970/1972)

DESCRIPTION	NUMBER OF HOURS OF NEW PROGRAMS PRODUCED/DAY		
	1970	1971	1972
Instructional	5.5	10.5	16.0
Cultural and Informative	4.5	7.5	8.5
TOTALS	10.0	18.0	24.5

(*) See Table 2.4-I

The Group anticipates that the production of educational programs will be considered a priority when funds are given and that the technical skills of the educational producers will improve. For these reasons, the percentage of educational programs in the total of new programs should increase from 55% to aproximately 66%.

3 - FUTURE BRAZILIAN NEEDS FOR SPECIALIZED PERSONNEL IN ETV

3.1 - Brief Description of Present Brazilian and International Production Methods

In São Paulo, approximately 40 producers and assistants produce little more than 5 hours of educational programs and 10 hours of cultural programs per week. In the case of educational programs, the station contracts a series of lessons with the subject matter teacher, who does not know ETV or has only fundamental notions about its utilization for teaching purposes. This teacher writes the basic text in the form of conventional lessons, usually recommending the visual material to be used. The text is then turned over to the producer, who transforms it into a TV outline. This outline is sent back to the teacher to check accuracy of content. Finally, the TV director develops the program, almost always with the help of the producer. Recife follows a similar method.

In the United States and in Europe a team of specialists works, on the average, 80 to 120 hours to prepare the outline for one hour of ETV. In Sweden, Germany, and England this team includes programmers, subject matter specialists, mass communication specialists, and producers.

In Brazil, due to the insufficient number and low quality of teaching staff in the three levels of education, the lack of other audio-visual resources, and the almost non-existence of educational and technologial innovations, it is recommended that programmed instruction accompany the ETV broadcasts to offer the most rapid and economic way to reach a higher standard of quality.

3.2 - Criteria Adopted

The problem of quantifying Brazilian needs for ETV specialists is extremely broad and diversified. In order to propose a systematic solution, the Group classified ETV technical personnel in four (4) broad categories (*), as follows:

Class I - High level administrators, including directors and administrators in all sectors, especially those who are directly concerned with ETV's financial resources;

(*) Only the functions performed within the station, or telecenter, are considered herein. In the particular case of an integrated system with a network of centers of organized reception, or the network of conventional education, it would be necessary to consider the training of monitors, classroom teachers, etc., which we believe to be outside the scope of this document.

Class II - Programming teams which should include planners and programmers, specialist in teaching & communications, teachers and specialists in specific content matter (teaching staff), and evaluators (pedagogists and specialists in communications);

Class III - Production teams, involving producers, TV audio-visual specialists, artwork specialists for scenery, photography, drawing, graphics and cinema, and their assistants;

Class IV - Operation and maintenance teams, usually included in a department of engineering and/or technical department.

As far as the training needs of administrative executives are concerned, the Group recommends a series of lectures with the attendance of al least 2 representatives for each channel. The lectures should be delivered by representatives from MEC (FCBTVE), MINIPLAN (CNRH), and Ministry of Communications (probably CONTEL). These lectures should cover objectives that the Government wishes to achieve, as well as the approach to be used. This would be a good opportunity for SATE to allot specific responsabilities to each of the Brazilian ETV's, including those which have requested educational channels, and then, in due course, coordinate the activities of ETV stations. It might even be possible to assign specific areas of activity to each ETV institution as well as plan the investment of funds for them.

The Study Group believes that the training of programming teams is a crucial area, because the existing ETV teams operate very inefficiently and do not follow specific educational objectives when producing programs. Indeed, present ETV programs correspond very little to local educational needs. The one exception to this situation is the work at São Luiz in Maranhão, where the ETV station works directly with the Secretariat of Education in order to integrate its activities with the local educational system. The Group recommends that the training of programming teams should prepare programmers and teachers as well as planners and evaluators.

For the third category, production teams, the Group recommends that special attention be given to the preparation of Producers and ETV Audio-Visual Specialists, due to the complexity of these areas. Personnel for artwork could be recruited from other fields, such as theater, cinema, and advertising, and given short introductory courses to ETV. Only introductory courses would be needed because art specialists need only learn the application of these techniques to ETV.

Finally, with regard to operators and maintenance personnel, the Group believes that this kind of training should remain under the responsibility of each ETV institution, which should make the same effort in developing their maintenance staff as they make in acquiring their equipment. Perhaps one of the requiriments for the installation of an ETV channel could be that the station have a well trained maintenance staff. It might, perhaps, become necessary to provide courses for operators from commercial TV, who could thereby adapt their skills to educational television.

In conclusion, the total training program should concentrate specifically on specialized training for teachers, pedagogists, A-V specialists, and communicators with the objective of forming ETV production teams.

3.2.1 - Size and Functions of Production Teams

To identify the functions and the amount of participation of the different segments of a work team, it is necessary first to describe the various phases of preparation in the production of an ETV program. Then the extent of involvement of each part of the production team can be identified (*).

Steps in the preparation of a typical program are described below:

I - General Planning - to establish objectives for a program or series of programs, the type of audience to be reached, shedule for transmission, integration with other media and educational componentes, attention to educational priorities, methods of subsequent evaluation, advancement, etc.;

II - Specialized Planning - to identify the treatment of the subjects or teaching content in size and depth, the preparation of evaluation materials (tests, etc.), selection or determination or supplementary supportive materials (bibliography for teachers, students, monitors, etc.); juding conditions of reception, etc.;

III - Programming - to cover the selection and order of concepts to be transmitted, defining the duration of learning periods, applying teste and exercises, preparation of basic texts, etc.;

(*) In TV language, the expression "production" is used to signify many things. Therefore, it is not convenient to use it without specifying what is meant. In the present case, it refers to the preparation of the script and the planning of visual sequences and sound materials, and includes the task of production per se.

IV - Production - to cover the writing of the script, selection of audio-visuals (including sceneries, wardrobe, sound effects, film editing, etc.), camera techniques (indication of lenses, angles, takes, and timings), planning of the production of AV meterial, preparation production schedules, etc.;

V - Direction - to consist in rehearsals, actual preparation of AV material and, finally, recording on VT (video tape) and editing, if necessary; or broadcasting programs live;

VI - Evaluation, Research and Feedback - to include the evaluation of the program prepared, analysis of results, research for new alternatives, and suggestions for improvement.

To perform these tasks adequately, it is necessary to develop work teams capable of an intense degree of mutual interaction. Such a situation does not occur in commercial television. If one hour of recorded or broadcasted program is considered a unit of production and if the work required for production is restricted to what is discussed here, a minimum work team should consist of:

1 programmer, specialized in programmed instruction
1 TV producer
1 AV specialist
1 teacher, or specialist in the subject matter covered in the program
1 evaluator, specialized in communications and/or didatics
1 planner, specialized in educational planning

It is not necessary that the evaluators and planners work as full team members due to the nature of the duties they perform. Two teams could receive the service of one planner and one evaluator, or else, an evaluation and planning committee could be organized for the whole production effort of a station. The first organizational scheme is technically more feasible that the second.

The participation of each part of a team in the entire production process is outlined in Table 3.2.1-I with the degree of participation of each one. Unfortunately, it is impossible to quantify this participation in terms of number of hours of individual performance due to the nature of the work.

TABLE 3.2.1-I

Phases of Planning

TEAM AND ITS FUNCTION	GENERAL PLANNING	SPECIFIC PLANNING	PROGRAMMING	PRODUCTION	DIRECTION	EVALUATION	RESEARCH	FEEDBACK
Programmer	N	L	L	N	N	L	N	N
Producer	N	N	M	L	L	S	N	N
AV Specialist	N	N	M	L	N	S	S	N
Subject matter Specialist	N	L	L	M	N	S	M	N
Evaluator	N	N	N	N	N	L	L	L
Planner	L	N	N	N	N	N	M	L

CODE:

N = no participation

S = small degree of participation

M = medium degree of participation

L = large degree of participation

3.2.2 - Techinical Rates for the Use of Personnel in Production of ETV

In the United States approximately 80 man-hours of work by the production teams are required for the preparation of one hour of script. This estimate covers only the time spent in specific planning, programming, prepatation and test construction. For programmed instruction, the estimate, including the necessary tests, is 100 man-hours of work for one programmed hour of material. In Sweden there are examples of 120 man-hours per hour of programmed TV instruction.

The initial productivity of teams in Brazil would probably be low since they are new at the work. Therefore, we estimate that a minimum of 100 man-hours of team work would be needed for one hour of planned, programmed, and produced script. This is below the standards of certain European countries, but above the American, where experience and adequate supporting systems makes better efficiency possible.

This assumption is compatible with the following Brazilian experience: in São Luiz, Maranhão, the "Centro Educacional do Maranhão" produces 20 minutes of class with approximately 30 man-hours, including the time for rehearsals and recording. However, the Maranhão Center has more than one year of experience in team work and is able to operate at an accelerated rate because of special conditions existing there.

In São Paulo, 40 producers, directors, assistants, etc. are needed 28 hours to prepare 12 hours of rehearsals and recording. Therefore, approximately 1,100 hours of preparation result in 15 hours of script (80 man-hours per hour of script). The production team feels that the load is too heavy for good quality programs. Also, the hours spent programming by the teachers are not included. There is also an estimated need here for one specialist in evaluation and planning for every two teams.

In Maranhão, there is one evaluator per team, and one planner per 2.5 teams. We believe that evaluation in the field of ETV must be conducted by an agency independent of the group responsible for production of the program. The team evaluator should only participate in the final analysis and should be responsible for the feedback.

Finally, we estimate a need for two assistants per team to accompany all the various phases from planning to feedback and research.

3.3 - Conversion of Projected Production Scales into Qualified Personnel Needs in ETV

We have estimated a production of 10 hours per day of new programs at the end of 1970, and adopted a basis of 100 man-hours of work per hour of

script. Assuming that Saturdays and Sundays will be used for re-runs and, based on 40 hours of work per week, we have:

1) 10 hours/day x 100 man-hours per hour = 1,000 man-hours per day
2) 4 persons x 8 hours/day = 32 man-hours per day per team (not including planners and specialists in evaluation)
3) 1,000 man-hours per day ÷ 32 man-hours per day = 30 teams

We consider that two teachers, half-day time each, would be necessary for each team because of the diversity in subject matters and teaching levels of the programs. The following personnel would therefore be required in each of the different specialities in order to staff 30 teams:

Personnel	% in Proportion to the Total of Specialists (240)
30 Producers	12.5%
30 Programmers	12.5%
30 Pedagogists	12.5%
60 Teachers	25.0%
15 Planners	6.25%
15 Evaluators	6.25%
60 Assistants	25.0%

TOTAL: 240 persons for 10 hours/day of additional production at the end of 1970.

The next section projects the personnel needs which correspond to the estimated increase of production.

3.4 - Projected Demand for Skilled Personnel for ETV

There are at present approximately 30 persons in São Paulo, 20 in Recife (not including the teachers who do not have a background in TV production, and only write texts without programming), and 20 in São Luiz who are producing ETV programs. There is also a certain number, difficult to be computed, of personnel with theoretical knowledge and/or experience in ETV abroad. This last group is not being taken into consideration, because the majority will be requested to: develop the teaching staff which gradually will train the necessary personnel; or participate in research; or administrate activities until others will be able to occupy these positions competently; or perform important roles in closed-circuits, whose personnel needs are not considered in this document.

3.4.1 - Ist Projection: Taking into Account the Necessity for Training Existing Personnel

This projection is based on the assumption that some of the presently working personnel are not well qualified and would have to go through up grading courses. It is also assumed that the closed-circuits being installed will need personnel and that part of the personnel that should fill ETV needs will be diverted to those systems. This eventual loss will be counterbalanced by those presently working in ETV who do not need to go through up grading courses.

The resulting estimates are presented in Table 3.4.1-I.

TABLE 3.4.1-I

FIRST PROJECTION OF THE DEMANDS FOR SPECIALIZED MANPOWER IN ETV

YEAR	SEMESTER	HOURS/DAY OF NEW PROGRAMS	RATIO MAN-DAYS PER HOUR OF PROGRAM	PRODUCTION PERSONNEL REQUIRED	NEW PERSONNEL REQUIRED
1970	1st	6.5	-	160	-
	2nd	10.0	1:24	240	240
1971	1st	15.5	1:24	360	120
	2nd	18.0	1:22	400	40
1972	1st	21.5	1:21	455	55
	2nd	24.5	1:20	505	50

We estimate that 25% of the trainees would not receive their diploma because of drop-outs, failures, and other reasons. The loss rate per semester is expected to be 5% through assignements to new functions, such as administration or supervision, within the organization, or quit working. Out of the ones who passed examination, approximately 10% would be oriented toward teaching and research.

Table 3.4.1-II shows training needed per semester, beginning with second semester 1970, which would meet the demands for ETV specialists. Any training or up grading program in this area should be intensive in the beginning in order to correct the existing deficiencies.

TABLE 3.4.1-II

NEEDS AND LAVOUT OF THE TRAINING PROGRAM

YEAR	SEMESTER	NEW PERSONNEL FOR PRODUCTION AND PROGRAMMING	PRESENT MANPOWER NEEDS	LOSSES		NECESSARY Nº APPROVED TRAINEES	NECESSARY Nº MATRICULATED TRAINEES
				Entering Specialized Training (10% of col.3)	Transferences (5% of col.4)	(COL.3 + 5 + 6)	(± 133% OF COL. 7)
1	2	3	4	5	6	7	8
1970	2nd	240	240	24	12	280	370
1971	1st	120	360	12	18	150	200
	2nd	40	400	6	20	65	90
1972	1st	55	455	6	22	86	115
	2nd	50	505	6	25	80	105
TOTAL		505		54	97	660	880

Due to the difficulties in correcting the existing deficiencies, a comprehensive program should be initially required. We propose, however, a more balanced operational procedure with a view to the over all need of training 880 specialists in Brazil. These individuals would be recruited by various means and distributed in the manner indicated in Table 3.4.1-III and Table 3.4.1-IV.

TABLE 3.4.1-III

YEARLY DEMANDS FOR PERSONNEL TRAINING

YEAR	SEMESTER	NUMBER OF COURSES	NUMBER OF STUDENTS PER COURSE	TOTAL
1970	2nd	8	24	192
1971	1st	14	24	336
	2nd	7	20	140
1972	1st	5	20	100
	2nd	6	20	120
GROSS TOTAL OF TRAINEES				888

TABLE 3.4.1-IV

TRAINING DEMANDS AND OFFERS

YEAR	SEMESTER	PRESENT MANPOWER NEEDS	Nº OF TRAINEES MATRICULATED	Nº OF APPROVED TRAINEES	DEFFICIT SURPLUS +
1970	2nd	240	192	120	- 120
1971	1st	360	336	340	- 20
	2nd	400	140	405	+ 5
1972	1st	455	100	450	- 5
	2nd	505	120	510	+ 5

We estimate, therefore, that SATE, in cooperation with the universities and organizations in the field of ETV, will have the capacity to eliminate the deficit in ETV personnel by the end of 1971.

So as to implement a large number of courses in the first semester of 1971, we will request all the foreign professors to remain until the end of that period, at which time their Brazilian assistants will take over the teaching.

The number of trainees will be somewhat larger in the first two semesters than later, due to imperfect recruiting methods and numerous drop-outs in the first weeks of the course. Later on, having more experience and consequent improvement in selection methods, it will be possible to keep the initial groups smaller and more stable.

3.4.2 - 2nd Projection (Marginal): Limiting Training to New Staff Members

A second alternative would be to develop a less ambitious training project. This consists of admitting that personnel already in operation do not need upgrading. In this way, the initial deficit would be reduced by about 70 programming and production specialists. Table 3.4.2-I details the second projection using the above alternative.

TABLE 3.4.2-I

NEEDS AND LAYOUT OF THE TRAINING PROGRAM - SECOND ALTERNATIVE

YEAR	SEMESTER	NEW PERSONNEL FOR PRODUCTION AND PROGRAMMING	TRANSFERENCES	NECESSARY Nº APPROVED TRAINEES	NECESSARY Nº TRAINEES (ONLY 75% APPROVED)	STARTING SPECIALIZED TRAINING
1970	2nd	170	12	210	280	24
1971	1st	120	18	150	200	12
	2nd	40	20	65	90	6
1972	1st	55	22	85	115	6
	2nd	50	25	80	105	6
GROSS TOTALS		435	97	590	790	54

This training program presented above is in a scale which is approximately 10% less than the previous one. Its adoption is not recommended because problems of a conflicting nature would probably occur between the trained and untrained specialists concerning program content. There is an advantage in using this alternative because personnel needs estimated for the first semester of activities would be reduced. These initial needs may be the most difficult to fill.

Remarks: Two items have split the opinions of the Group members significantly.

a) The number of persons diverted to other functions (see Tables 3.4.1-II and 3.4.2-II) was estimated on the supply of personnel. The other alternative, estimated on the flow of personnel, would mean decreasing by approximately 10% the number of students to be trained;

b) The training program could be equalized in each of the 5 semesters, instead of concentrating on the first semester of 1971. This would result in a deficit of personnel that year, and the balance between supply and demand would only be reached by the end of 1972. This plan would, however, facilitate the administration of the program.

In case we decide upon the latter of the two alternatives, the necessary changes should be made when the final project is drawn up, because the estimates contained in this report would have to be disregarded.

4 - LAY-OUT OF A GLOBAL TRAINING PROGRAM

4.1 - Existing Conditions for Program Implementation

4.1.1 - Experiments at the National Level

In Brazil, there does not exist as yet a systematic effort to train ETV specialists.

In Guanabara, the Institute of Education, with its closed-circuit TV, has been conducting introductory courses for teachers, producers and technicians since 1960, having trained up to the present more than 300 participants. In 1969, FCBTVE conducted two introductory courses of 6 and 4 weeks duration for 60 participants.

In São Paulo, the University of São Paulo, through its School of Comunications, is providing training in studio activities for participants not specifically connected with ETV. The same occurs in Guanabara and Pôrto Alegre where, however, no training of a practical nature is given.

In Pernambuco, TV Universitária graduated 10 producers, after 3 weeks of training, and 35 technicians in Electronics, after a 6-month course.

In Maranhão, the Centro Educacional do Maranhão prepared more than 100 persons in the closed-circuit system of its own, providing courses of short duration, with a progressing expansion of course content. These courses started in January, 1969, and continued through July and September; the last one being held in January, 1970.

None of the courses provided up to now in the area of ETV can be considered as being of a professional nature, i.e. being courses that really develop the capabilities required for the responsibilities of planning, production and evaluation of ETV. At the most, we might consider the persons who have had such training, as usables in the first priority in the training program proposed herein, without their having to go through one of the introductory courses.

4.1.2 - Physical Units Usable for Training

At present, the closed-circuits of the Instituto de Educação in Guanabara, the University of São Paulo, Maranhão and the TV Universitária in Recife, offer some possibilities for the training of personnel. The Group believes that TV Cultura would not be opposed to making available their facilities for courses or internship programs. In July, we will be able to count on the closed-circuits of FCBTVE and, probably, still this year, with that of CNAE.

For the training in AV, applied to ETV, especially in the areas of cinema, the Centro Regional de Pesquisas Educacionais, in São Paulo, provides good working conditions. In the area of Communications Theory and Research and, especially in the sector of Graphic Arts, we could count with the cooperation of the Faculty of Industrial Drawing, in Guanabara, which has good laboratories, workshops and facilities.

Other systems, including the ones connected with private enterprise, may become available without requiring the investment of funds.

4.1.3 - Human Resources Available to Carry Out the Program

Despite the availability of a certain number of Brazilian technicians in the area of communications, arts, TV techniques, etc., who could be mobilized for conducting training courses, the Group refrained from entering into details on this subject.

The proposed plan for the recruitment and selection of Brazilian professors who will participate in the courses will be taken up later on. It can be anticipated, however, that the selection, from a technical-professional viewpoint, will be made by the foreign professors themselves.

We believe that during the first courses the Brazilian staff may represent around 50% of the total teaching staff. This percentage will be increased gradually, as the proportion of students already trained become specialized, as previously estimated.

As far as the development of a teaching staff is concerned, there are no major problems, since there is enough motivation and experience related to the process of recruiting and selection.

4.1.4 - International Cooperation Desired

Based upon the scope of the problem for the establishment of a training program at a national level the Group considers indispensable the participation of international agencies and experts for the following tasks:

1) Preparation of a complete training project including sources of financial support for the program itself;

2) Planning of courses which will constitute the program, i.e. the preparation of curricula, supporting materials, selection tests for the enrollment of students, etc.;

3) Recruitment, selection and training of Brazilian teachers;

4) Assuming teaching responsibilities in the training courses.

These phases of international cooperation will - in many cases - be simultaneous, although phases 1) and 2) should be started immediately.

4.2 - Technical Characteristics of the Proposed Lay-Out

4.2.1 - Strategy

The training conducted overseas, for the preparation of personnel specialized in ETV and technicians in related areas (Educational Radio, Art-work, etc.) is generally connected with universities and/or specialized institutes (theoretical training), as well as with the agencies responsible for the production and programming of ETV (practical training). There are exceptions, however, where those institutions are direct or indirectly connected with a certain Ministry (Education, Information, etc.).

The Study Group believes that the most feasible solution for Brazil must be studied by means of a project, resulting from this initial report, when there will be time to analyse the advantages and disadvantages of the different options.

On the other hand, the urgency to start a national program for training and upgrading personnel requires the development of a special board to provide the necessary support. The Group suggests that such a board be subordinated to SATE, until the optimum solution is found. In this way, would be created the conditions for the immediate start of the training program.

In this manner, it would be possible to organize the program at once and to centralize the training, which is presently dispersed among the various ETV institutions. In addition, guidelines would be adopted, with sufficient backstopping to be accepted by all parties, for establishment of curricula, standardization of procedures and determination of criteria for course equivalence.

Once the device is put into operation, two simultaneous lines of work could be determined, as:

- preparation of a project toward the formalization of the board, through the development of a training entity, as far as the organizational and legal structure, source of income, and technical and administrative operations are concerned; and

- establishment of an operational strategy for the provisional board, involving definite programs of the course, recruiting of teacher and student bodies, securing of international cooperation, breaking-down of

curricula, preparing supporting materials and budgets, and developing internship programs.

As far as the first part is concerned, it is the responsibility of SAVE to establish preliminary guidelines to be adopted and developed. With regard to the immediate implementation of the board - in case it is implemented - the Group determined some preliminary phases of the work:

- preliminary programming for the courses;
- recommendations for selection criteria for students;
- analysis of possibilities of international support.

Although the plans prepared by the Group must be revised by international specialists, every one of the phases already started is analysed herewith.

4.2.1.1 - Preliminary Planning for the Implementation of Courses

2nd Semester 1970

2 Courses for Producers (São Paulo, 1 for upgrading of skills)
1 Course for Programmers (Bahia)
1 Course for Educational Specialists (AV) (São Paulo)
2 Courses for Teachers (Maranhão and Pernambuco)
1 Course for Planners (Guanabara)
1 Course for Specialists in Evaluation (Rio Grande do Sul)

8 Courses x 24 students... 192

1st Semester 1971

2 Courses for Producers (Maranhão and Pernambuco)
2 Courses for Programmers (São Paulo and Guanabara)
2 Courses for Educational Specialists (AV) (São Paulo and Guanabara)
1 Course for Planners (Rio Grande do Sul)
1 Course for Specialists in Evaluation (Bahia)
3 Courses for Teachers (Rio Grande do Sul, São Paulo and Guanabara)
3 Courses for Assistants (Amazonas, São Paulo and Rio Grande do Sul)

14 x 24 students... 336

2nd Semester 1971

2 Courses for Producers (Amazonas, Rio Grande do Sul)
1 " for Programmers (Pernambuco)
1 " for Educational Specialists (AV) - (Guanabara)
2 " for Teachers (Bahia, São Paulo)
1 " for Assistants (Pernambuco)

7 x 20 students ... 140

1st Semester 1972

5 x 20 students ... 100

2nd Semester 1972

6 x 20 students ... 120

4.2.1.2 - Recommendations for Selection Criteria for ETV Trainees

The student body will be selected by means of aptitude tests, which will be closely related with the practical work the student is supposed to perform when finishing the course.

Considering the need for the development of general guidelines to establish uniformity in the selection process, the Group recommends the following:

- To be enrolled in a course for assistants, the applicant must have completed a secondary-level education and must have a good general culture, basic knowledge of ETV, and a considerable performance-capacity. Preference will be given to candidates with pedagogical and/or artistic experience (practical arts, cinema, photography, theater, etc.).

- To be enrolled in a course for producers, the applicant must have completed secondary-level education and must have excellent general culture, theoretical and practical hnowledge of TV, well developed faculties, and visual systhesis. Applicants with pedagogical and/or artistic experience will be given preference, as will the ones who are already professionally engaged in the above mentioned field.

- To be enrolled in the course of progremmer and educational specialist, the applicant must have completed the university, or a course at a higher technical level. Preference will be given to graduates from Schools of Education, Pedagogy, Psychology and Engineering. Persons with proven experience in Statistics, Analysis of Systems or Programming of Computers, may also apply to take aptitude tests for these courses.

- To be enrolled in the course of teacher, the applicant must have a teaching degree compatible with his level of performance, as well as practical

experience. Besides, he must have great capacity for systhesis and communication, as well as general knowledge of ETV and, if possible, some artistic experience.

- To be enrolled in the courses of planner and specialist in evaluation, it is required that the applicant be a graduate of Economics Administration, Engineering, Social Science, etc. (in case of planner) or Education, Statistics, Psycology, Sociology, etc. (for the specialist evaluation). Preference will be given to candidates with multidisciplinary experience or knowledge and to those who show characteristics of generalists. Applicants must have knowledge of statistics and methods of identifying educational need (planner) and how to evaluate results (specialist in evaluation).

It is required that all applicants have considerable capacity for team work and that they have a sense of self-criticism in relation to their work with a view to constant improvement. During the first two semesters of the work, candidates must be able to undertand and to express themselves in spoken English with a reasonable degree of fluency. From then on, it will be sufficient that the candidates understand written English or French. Exception will be made for assistants. Preference will be given, as a general rule, to persons who successufully attended introductory courses in ETV.

In this program we assume that there exists a large number of persons with introductory knowledge and, therefore, probably capable to act as assistants. This justifies the proportionally small number of courses in this category.

We would rather not specify the organizations which, in the states, will carry out the program. We believe that only one organization per semester should assume the responsibility for a course, although it might be called upon to cooperate in another course, promoted by another organization.

For 1972, it was only possible to estimate the number of courses, since the change in personnel per category may fluctuate after experience with the first group indicates the ideal structures for the team. In the same way, experience will tell where these courses will be the most efficient and where future needs will be located. If deemed necessary, the break-down for 1972 courses will be made in the final project.

The Group believes that, despite the urgency of this subject, the necessary period of time for approval of the final project and its subsequent implementation will result in delaying the beginning of the courses. The difficulties brought about by this delay will probably be solved by an initialy more intensive system (for course with a larger load of work hours).

4.2.1.3 - Some Possibilities of International Support

The British Ministry of Overseas Development has already offered support to Brazil, with specialists for the preparation of the final project and training for ETV producers, as well as instructional materials. Scholarships were also offered for ETV programming studies, which makes us think of the possibility of the arrival in Brazil of teachers for this subject.

Sweden, through the Swedish International Development Agency, might also finance the travel of experts, especially in the field of evaluation and planning.

USAID maintained their offer of training researchers in educational technology. We believe that the offer also covers teachers, specialists in evaluation and planners. UNESCO and UNDP also indicated possibilities of support.

We assume, therefore, that foreign teachers, as well as part of the instruction materials, will be made available to Brazil at no cost (ses Table 4.2.3.h).

4.2.2 - Involvement of National Institutions and Timetable

During the development of the project, agreements must be signed with agencies which will participate in its implementation. For this purpose, perhaps it may become necessary to contact possible collaborators immediately. While the courses for producers, teachers and assistants should be located where ETVs exist, the remainder should be located in universities, or post-graduation centers, with easy access to studios.

The next step to be taken immediately, based on this report, is to submit to the Ministry of Overseas Development, through the British Council in Rio, or to another foreign agency, a request for one or two experts - preferably from CETO - for 6-8 weeks, in order to cooperate in the preparation of the final project. At the same time, contacts should be made with Brazilian organizations for the purpose of securing support for the project.

This report should be translated into English, for distribution to possible international collaborators. After the final report is prepared, and translated into English, it should be submitted to the agencies which might finance this project.

In order to establish when and where the courses will be held, it will be necessary that members of the coordinating team travel in order to study possible locations.

In order to develop the project on a short-term basis, it is recommended that at least two high-level specialist should advise the foreign

experts on a full-time basis. There should be 4 interns, working on a part-time basis as auxiliaries, 1 bilingual secretary and 1 typist.

4.2.3 - Preliminary Estimates of Investment

The following estimates are very general, and only give an idea of the magnitude of the probable costs. It is up to the final project do determine the costs.

Expenses were classified in the following categories:

I - Expenditures with Personnel

II - Materials

III - Other Services.

We assume that the training mentioned in this study will be conducted in the facilities of universities and existing institutions. There is a need to develop, as a new organization, only a central group within the apropriate federal agency to coordinate and supervise the training.

The figures mentioned herein are based on costs as of June 1970.

TABLE 4.2.3.1

EXPENDITURES WITH PERSONNEL

(in thousands of cruzeiros)

	1970	1971	1972
A) Administration of a Central Team (See Tables 4.2.3.a and b)	a) 11.5 b) 66.5	162 470	51.5 445
B) Permanent Teachers and Guest Lecturers (Tables 4.2.3.c and b)	c) 184 d) 7	2,352 98	585 30
C) Scholarships (Table 4.2.3.e)	11.5	320	264
D) Miscellaneous	29.5	340	137.5
TOTAL COST FOR PERSONNEL	310	3,740	1,510

TABLE 4.2.3.f(*)

4.2.3.2 - COST OF MATERIAL

	1970	1971	1972
A) Permanent Materials	100	140	25
B) Consumable Materials	130	297.5	152.5
C) Miscellaneous	10	17.5	7.5
TOTAL COST OF MATERIALS	240	455	185

TABLE 4.2.3.g(*)

4.2.3.3 - SERVICES

	1970	1971	1972
A) Information, publishing and Recruiting	25	65	35
B) Travel tickets	55	170	110
C) Per diem	15	225	175
D) Reserve fund (5%)	5	23	16
TOTAL COST OF SERVICES	100	485	335
GROSS TOTAL FOR EXPENDITURES IN PERSONNEL, MATERIAL AND SERVICES	650	4,680	2,030

4.2.3.4 - Possibilities of Financing

Expenditures for experts and foreign materials could be financed through some international agency, such as UNDP.

Such expenditures include:

TABLE 4.2.3.h

EXTERNAL EXPENDITURES(*)

	1971	1971	1972
A) Foreign Teachers (Table 4.0.3.c)	144	1,690	-
B) Permanent Material. Projectors and drawing kits	25	10	-
VT Recording Tapes	-	75	25
Educational Films	5	15	-
Books	-	10	-
C) Material for Production (films, slides, tapes, etc.) 90% of the total	100	220	115
D) International Travel Tickets	40	25	30
E) Reserve Funds (10%)	31	205	15
YEARLY TOTALS FOR EXTERNAL EXPENDITURES	345	2,250	185

(*) In thousands of cruzeiros.

We believe that the Brazilian counterpart funds can be obtained by means of external funding, especially for 1971/1972. In case international support is obtained, it will be as follows:

(in thousands of cruzeiros)

	1970	1971 .	1972
Total cost of the program	650	4,680	2,030
International support	345	2,250	185
National funds and/or loans	305	2,430	1,845

TABLE 4.2.3.a

ADMINISTRATION AND LOCAL TEAM

CONDITIONS

1 - One Secretary/typist for the courses of a continuous nature.

2 - Salary of 0.5 thousand cruzeiros per month, including indirect costs (INPS, 13th Salary, etc.).

3 - Whenever there will be three parallel courses on the same subject, auxilieries from other subject matters can temporarily provide assistance to the courses.

4 - 13 months for the payment of of personnel in 1971, because the second course of that year will be terminating in January, 1972.

5 - Beginning of the activities in 1970.

COURSE FOR	1970		1971		1972		TOTAL COSTS PER COURSE (IN THOUSANDS OF CRUZEIROS)		
	No	Mon.	No	Mon.	No	Mon.	1970	1971	1972
Planners	1	1	1	8			0.5	4	
Producers	2	1	2	13			1	13	
Programmers	1	1	1	13			0.5	6.5	
Pedagogists	1	1	1	13			0.5	6.5	
Teachers	2	1	2	13			1.0	13	
Evaluators	1	1	1	8			0.5	4	
Assistants	0	0	1	10			-	5	
TOTALS	8	9			11	5	4	52	27.5

6 - Technical team of 4 members per studio for producers course.

7 - 0.5 studio for course for teachers and assistants.

COURSE	1970			1971			1972		
	Team Members	No of Courses	Mon.	Team Members	No of Courses	Mon.	Team Members	No of Courses	Mon.
Producers	4	2	1	4	2	13	4	1	5
Teachers	4	1	1	4	1	13	4	1	5
Assistants	-	-	-	4	1	5	-	-	-

ANNUAL COST PER COURSE

(in thousands of cruzeiros)

COURSE	1970	1971	1972
Producers	4	52	10
Teachers	2	26	10
Assistants	0	10	0
Subtotal	6	88	20
8) + 20% for assistants	1.5	22	4
GROSS TOTAL for 4.2.3.a	11.5	162	51.5

TABLE 4.2.3.b

GENERAL COORDINATION TEAM

CONDITIONS:

1 - An initial group to assist the foreign expert (or experts) during the elaboration of the final project and to secure the continuation of necessary work until the **start** of activities. The minimum time foreseen for this group is 3 months.

2 - Vacation time corresponding to 1971 will be remunerated in service, thus producing an extra salary.

INITIAL GROUP:

2 Specialists	at 2,500 x 3 months	=	15,000
5 typists and trainees	at 400 x 3 months	=	6,000
1 bilingual secretary	at 1,500 x 3 months	=	4,500
			25,500
13th salary, INPS, FGTS - + 25%			6,500
13th salary, INPS. FGTS - + 25%			32,000
Services rendered (to write agreements, etc.)			+5,000
GROSS TOTAL			37,500

CENTRAL TEAM

	MONTHLY SALARY	IN THOUSANDS OF CRUZEIROS		
		1970	1971	1972
1 General Director	4,000	4		
6 Course Coordinators (planners, producers, programmers, specialists in education, professors, evaluators)	2,500	15		
3 Specialists (information, economic control, administration)	2,000	6		
6 Secretaries and typists	500	3		
3 Telephone operators, janitors	330	1		
3 months, initial group		29 37.5		
TOTAL 4.2.3.b		66.5	470(*)	445(*)

(*) Incl. + 25%. INPS, FGTS, 13º

TABLE 4.2.3.c

PERMANENT TEACHERS

CONDITIONS:

1 - Initially 4 teachers per class, being reduced afterwards to 3.

2 - A Brazilian teacher for each foreign one.

3 - Only Brazilian teachers for the courses for assistants.

4 - Salary of US$2,000 (=Cr$9,000) per month for foreign teachers, including their per diem costs and other similar costs, but not including trips.

5 - Salary of Cr$ 2,000 for Brazilian teachers.

6 - 1st course - December 70 through March 71; 2nd course - April through August 71; 3rd course - September 71 through January 72; therefore, the first course is the shortest, assuming the use of the personnel already operating.

TABLE 4.2.3.c

PERMANENT TEACHERS

COURSE NAME	1970							1971								1972			
	No.	Mon.	Foreign Teachers	Cost/ Mon.	Braz. Teachers	Cost / Mon. *	TOTAL	No.	Mon.	For. Teach.	Cost/ Mon. *	TOTAL For.	Braz. Tea.	TOTAL Braz.*	TOTAL	No.	Mon.	For. Tea.	TOTAL
Planners	1	1	2	18	2	5	23	1	8	2	18	144	2	40	184				
Producers	2	1	4	36	4	10	46	4	13	4	36	468	4	130	598				
Programmers	1	1	2	18	2	5	23	3	13/6	2	18	234	2+2	95	329				
Educational Specialists	1	1	2	18	2	5	23	3	13/6	2	18	234	2+2	95	329				
Teachers	2	1	4	36	4	10	46	5	13/6	4	36	468	4+2	160	628				
Evaluators	1	1	2	18	2	5	23	1	8	2	18	144	2	40	184				
Assistants	0	0	0	0	0	0	0	4	10	0	0	0	0	100	100				
TOTALS	8	-	16	144	16	40	184	21	-	16	144	1 692	20/26	660	2 352	11	13	18	585
YEARLY TOTALS FOR 4.2.3.c							184								2 352				585

NOTE: Cost/Mon. refers to total cost per month of teacher salaries.

(*) Inclusive fringe benefits

TABLE 4.2.3.d
GUEST TEACHERS

CONDITIONS:

In the courses for producers, 20% of the classes are given by paid guest teachers (500.00/day). In the other courses, 10% of the classes are given by paid guest teachers (250.00/day). Average of 20 classes per month.

Only 10% of guest teachers in 1972 (250.00).

COURSE	1970					1971					1972			
	No.	Days	% *	Total Days	Total Thousand $Cr.	No.	Days	% *	Total Days	Total Thousand $Cr.	No.	Days	% *	Total Thousand $Cr.
Planners	1	20	10	2	0.5	1	160	10	16	4				
Producers	2	40	20	8	4	4	520	20	104	52				
Programmers	1	20	10	2	0.5	3	360	10	36	9				
Pedagogists	1	20	10	2	0.5	3	360	10	36	9				
Teachers	2	40	10	4	1	5	620	10	62	15				
Evaluators	1	20	10	2	0.5	1	160	10	16	4				
Assistants	0	0	0	0	0	4	200	10	20	5				
TOTAL	8				7	21				98	11	100	10	30
YEARLY TOTALS 4.2.3.d					7					98				30

(*) Percentage of classes taught by guest teachers.

TABLE 4.2.3.e

SCHOLARSHIPS

CONDITIONS:

1) In the courses of 1970, only 10% of the students can receive scholarships at Cr$ 600.00/month - assuming that the majority of candidates will be sent, and therefore financed, by the agencies interested in personnel(Foundations, SECs, etc.).

2) In the 21 courses of 1971, 20% of the students will receive scholarships.

3) In the 11 courses of 1972, 40% of the students will receive scholarships.

4) The level of the scholarships was established by taking into consideration the salaries of professionals, who will give up their activities in order to work in this sector.

YEAR	STUDENTS	MONTHS	% RECEIVING SCHOL.	TOTAL*	YEARLY TOTALS FOR 4.2.3.c
1970	192	1	10	11.5	11.5
1971	192	3	10	34.5	
	336	5	20	201.5	
	140	5	20	84	320
1972	100	5	40	120	
	120	5	40	144	264

* In thousands of cruzeiros.

TABLE 4.2.3.f

MATERIALS

CONDITIONS:

1) The studios of TV, cinema, etc., where the training will be given are duly euipped.

2) The equipment mentioned below is for the workshops in the universities.

3) Almost all the permanent equipment will be purchased by the end of 1970; however, part of the corresponding payment will be made in 1971.

a) PERMANENT MATERIALS	PAYMENT DISTRIBUTION*				
	At	Total	70	71	72
4 Slide projectors (courses for Producers, Specialists in Education, and Teachers)	750	3	3	-	-
4 Motion picture projectors (courses for Producers, Specialists in Education and Teachers)	2,500	10	5	5	-
4 Sets of drawing instruments (courses for Producers, Specialists in Education and Teachers)	2,500	10	5	5	-
4 Overhead Projectors	3,000	12	12	-	-
20 Tables, desks, typewriters, telephones, etc. for the central team	2,000	40	40	-	-
40 Desks, typewriters, telephones, etc., for the local teams	1,500	60	30	30	-
40 Recording tapes for VT (5 for each course of production)	2,500	100	-	75	25
40 Educational films	500	20	5	15	-
250 Books for itinerant library	40	10	-	10	-
YEARLY TOTALS FOR PERMANENT MATERIALS			100	140	25

* All figures for Table 4.2.3.f are given in thousands of cruzeiros.

b) CONSUMPTION MATERIALS	1970		1971		1972	
	Nº	Total	Nº	Total	Nº	Total
Production materials: 40,000.00 per course for Producers	2	80	4	160	2	80
Production materials: 5,000.00 for other courses	6	30	17	85	9	45
Instructional materials (magazines, handouts, paper, etc.) and comunication (telegrams, telephones, mail, Xerox, etc.): 2,500.00 per course	8	20	21	52.5	11	
YEARLY TOTALS FOR CONSUMABLE MATERIALS		130		297.5		152.5
c) Eventuals ± (5%)		10		17.5		7.5
YEARLY TOTALS FOR ALL MATERIALS - 4.2.3.f		240		455		185

TABLE 4.2.3.g

SERVICES

CONDITIONS:

1) Rents of the necessary physical facilities will not be debited to this program.

2) Travel tickets for students will not be paid by this program.

3) Teachers will hold seminars thrice times per year.

4) Half of the Brazilian teachers will be recruited in the cities where the course will be conducted.

	IN THOUSANDS OF CRUZEIROS								
	1970			1971			1972		
	Nº	a	Total	Nº	a	Total	Nº	a	Total
A) Information, Publishing, and Recruitment									
2,000.00 per course for recruitment plus 1,000.00 for other expenditures	8	3	24	21	3	63	11	3	33
Yearly sub-totals			25			65			35
B) Transportation:									
Foreign Teachers	16	2.5	40	60	1	60	12	2.5	30
Brazilian Teachers	10	0.5	5	60	1	60	30	1	30
Central Team (7 persons x 10 travels per year)	14	0.7	10	70	0.7	49	60	0.8	48
Yearly sub-totals			55			170			110
C) Per-Diem									
Brazilian Teachers	1 160	60	9.5	2 640	60	158.5	1 960	60	117.5
Central Team (7 persons x 10 per-diem per month)	70	80	5.5	840	80	67	720	80	57
Yearly sub-totals			15			225			175
D) Reserve Funds			5			23			16
TOTAL FOR ALL SERVICES TABLE 4.2.3.g			100			485			335

4.3 - Conclusions

4.3.1 - Work Plan for the Development of the Final Project

a) The foreign experts and Brazilian advisors should start their work with a resumé of similiar trainings carried out in other countries.

b) Next, the objectives in the several categories should be established. This task should be carried out together, or in accordance with universities and the CFE. Criteria for final approval and methods of control and evaluation should also be established.

c) The next step would be the structuring of curricula, listing of materials, and selection of instructional and consumable materials.

d) Quantifications per category should be revised and physical and human resources should be detailed.

e) Preliminary selection of Brazilian teachers should be made.

f) Tests for student recruitment should be developed.

g) As follows, there is a detailed estimate of costs, linked to a final work schedule.

4.3.2 - Summary of Conclusions

The Study Group, assigned to conduct studies on "Training of Personnel for ETV", has initially taken into consideration the probable creation of new stations and the expansion of the existing ones. It was considered that until the end of 1971, São Paulo, Recife, Pôrto Alegre, and Manaus will be operating with approximately 9 studios, producingo 18 hours of new programs per day. Until the end of 1972, it was estimated that two more program-generating centers will be operating in a total of 13 studios and producing 24.5 hours per day.

The Group suggests that the training program include the preparation of specialists in programming, production, audio-visuals (educational specialists), delivering of classes, evaluation and planning, as well as the preparation of assistants.

The Group estimated that, until the end of 1971, in order to produce 18 hours daily, 400 persons will be necessary to staff the production teams. At the end of 1972, 500 persons will be necessary. Considering that a part of the trained personnel will be channeled to other functions, take specialization courses, or drop.out, and that still another part will not reach the required standards for final approval, it was estimated that 888 students should be admitted during the 5 semesters covered by this program, with greater concentra

tion during the first semester of 1971.

The Group considered the utilization of the existing studios and facilites for this program, in order to reduce the capital investment in the purchase of office equipment, a few projectors, and some instructional materials. It was also deemed necessary to establish a legal mechanism for the activities specified herein, either in the form of a specialized agency, or through delegation of authority to an already existing agency (ies).

It was estimated that by the end of 1970, 7 million dollars (more than 30 million cruzeiros) will be invested in Brazil in equipment and facilities for ETV. The annual operational cost is estimated to be 25 million cruzeiros for the period 1970/1971. The results of these expenditures have not been evaluated as yet, but some tentative studies already carried out indicate unsatisfactory results. In part, the lack of better results, may be explained by the almost non-existence of trained personnel.

Considering the enormous potentiality of ETV to improve education in Brazil or to provide it to segments of the population who have not received its benefits, any investment presently made for the purpose of either better utilizing existing facilities and equipment or developing new centers, can help prepare the needed human resources. This investment, if it is made in a project which has specific objectives and is aimed at producing greater efficiency, will be well worth the expenditures.

Therefore, we feel that the investment in personnel training in the amount (Brazilian counterpart funds) Cr$ 300,000 for this year, Cr$ 2,400,000 for 1971, and Cr$ 1,800,000 for 1972 (at the maximum, 10% of the annual operation cost) is entirely justified. We should also take into consideration the interest indicated by several international and foreign agencies to finance projects of this nature.

As an indirect result, this program will facilitate the subsequent training of personnel for Educational Cinema and Radio, reducing significantly the operational cost, due to the similarities in these subject matters. Immediately after training programs for ETV personnel have been established, the development of complementary steps for these other two programs should be considered, based on this study.

Once this initial report is approved, Brazil should immediatley look for technical assistance, in terms of one or two foreign experts, for the develop

ment of a final project, which should be submitted to those national and foreign agencies which, presumably, will cooperate in its implementation.

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